

CUSTOMER NO.: 24498
Serial No.: 09/808,463

PATENT
PF000020

REMARKS

Claims 1-12 are pending in this application with claims 1 – 2 and 7 – 10 being amended by this response. New claims 11 and 12 are added for consideration. New claims 11 and 12 have been added for consideration in order to further define the present claimed invention. Claims 11 and 12 state that “coding the compete image comprises an image being split into blocks and blocks being coded using a Discrete Cosine Transformation giving DC and AC coefficients”. The method of coding is a well known with respect to the MPEG-2 standard. Therefore, support for claims 11 and 12 can be found throughout the present specification.

Objection to the Abstract

The Abstract was objected to for being in improper form. The Abstract has been amended by this response to be a single paragraph and it is respectfully submitted that the Abstract is in proper form as required by the U.S. Patent and Trademark Office. In view of the above remarks and amendments to the specification, it is respectfully submitted that this objection has been satisfied and should be withdrawn.

Rejection of Claims 1-10 under 35 USC § 112

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

The Examiner rejected claims 1, 2 and 7 – 10 for claiming the MPEG standard which may change overtime and thus renders the claim indefinite. Claims 1, 2, 9 and 10 have been amended to replace all references to the “MPEG standard” with “a non object-based coding standard”. Support for this amendment can be found on page 1, lines 18 – 22 as well as page 4, lines 32 – 34 of the specification. Therein, the description clearly states that the coding is of the MPEG -2 type which does not use

CUSTOMER NO.: 24498
Serial No.: 09/808,463

PATENT
PF000020

video or image objects and that “the video objects are not defined a priori, ...in respect of coding”.

Additionally, claims 7 and 8 have been amended to insert a reference to a specific version of the well known MPEG 2 standard. Specifically, claims 7 and 8 have been amended to reference the version of the MPEG-2 standard described in “ISO/IEC 13818-2:1996”. This version describes the specific modes of the standard claimed in claims 7 and 8 which claim “skipped macroblocks” and “predictive modes”, respectively.

Thus, in view of the amendments to claims 1, 2, and 8 – 10, it is respectfully submitted that this rejection has been satisfied and should be withdrawn. As claims 3 – 7 are dependent on claim 1, it is respectfully submitted that rejection of claims 3 – 7 should be withdrawn as well.

Rejection of Claims 2-3 and 6 under 35 USC § 103(a)

Claims 1, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al., (U.S. Patent No. 6,678,416) in view of Ito et al. (U.S. Patent No. 6,377,309).

The present claimed invention is a process and device for coding video images using a non object-based coding standard that extracts at least one video object from an image originating from a sequence of images, by the construction of a segmentation key defining the contours of the object in the image. The video object is coded according to the standard so as to form an elementary stream (ES). A segmentation key relating to the video object is coded according to the standard, so as to form an elementary stream. A background image into which the object is to be inserted is coded according to the standard, so as to form an elementary stream. The elementary streams relating to one or more objects and to the background image are multiplexed so as to provide a program stream (PS) or transport stream (TS) according to the standard.

Sun et al. disclose an object segmentation and tracking process. A segmentation program is implemented, which identifies a video object within a video frame. Video object data is extracted for each video frame in which the object is tracked. Sun et al.

neither disclose nor suggest “a process for coding video images according to a non object-based coding standard” as in the present claimed invention. Rather, Sun et al. disclose relates to tracking of a video object, this is unlike “coding video images” as in the present claimed invention.

Ito et al. disclose the use of MPEG 2 and MPEG 4 standards for coding data. Ito et al. disclose that video and sound objects are combined into a multiplexed stream with scene configuration information that describes the positions appearance and disappearance times of the object in a scene. In the system disclosed by Ito et al., the coding/decoding of the objects requires an MPEG 4 coder/decoder (see Ito et al., Abstract). This is further shown in Figure 19 of Ito et al. which shows the system having an “MPEG 4 image decoding circuit” and an “MPEG 4 system data decoding circuit”. The transmission of objects is made by segmenting an image into VOPs and transmitting VOPs according to MPEG 4 (see Ito et al., column 5, lines 46-53).

The combination of systems disclosed by Sun et al. and Ito et al. result in a system that uses the MPEG 4 standard to code the objects corresponding to the segmentation. It is well known that MPEG 4 is an object-based coding standard. However, this is unlike the present claimed invention which is a process and device “for coding images according to a non-object based coding standard” i.e. the MPEG-2 standard. This distinction is made clear in amended claims 1, 9 and 10. Specifically, both Sun et al. and Ito et al. neither disclose nor suggest “multiplexing (4, 6, 7) the elementary streams relating to one or more objects and to the background image so as to provide a programme stream (PS) or transport stream (TS) according to [the non object-based coding] standard” as in the present claimed invention.

It is the specific goal of the present claimed invention to perform a coding of objects without using the MPEG 4 or object based coding standard. This is highly advantageous as the present claimed invention uses existing non object-based coders/decoders such as MPEG 2 coders/decoders. Thus, using a system disclosed by a combination of Sun et al. and Ito et al. requires the use of an MPEG-4 decoder which is an object based coder/decoder. An additional advantage provided by the present claimed invention is increased flexibility at the decoder side, for example when constructing a scene. Furthermore, the separate coding at the coder side allows for chroma-key operations to be performed at the production site with the highest quality. These operations can then be reused as desired without repeating the operation. An example of where this is useful is the insertion of advertisements in a picture.

CUSTOMER NO.: 24498
Serial No.: 09/808,463

PATENT
PF000020

The present claimed invention separately codes extracted video objects and chroma-key data according to the non object-based coding standard such as the MPEG 2 standard, not MPEG 4 standard which as required by Ito et al. Additionally, Sun et al. and Ito et al. neither disclose nor suggest using elementary streams to be multiplexed “to provide a programme stream (PS) or transport stream (TS) according to said standard” as in the present claimed invention. It is the “transport stream or program stream” of the present claimed invention which carry such data sent to the decoder.

While Sun et al. and Ito et al. disclose the segmentation of an image, they do not disclose or suggest the use of segmentation frames and the coding of such frames as in the present invention. Therefore, Sun et al. and Ito et al. neither disclose nor suggest “coding (3) the segmentation key relating to the video object, according to said standard so as to form an elementary stream” as in the present claimed invention. Furthermore, Sun et al. and Ito et al. neither disclose nor suggest that “said standard” is a “non object-based coding standard” such as MPEG 2.

In view of the above remarks and amendments to the claims, it is respectfully submitted that Sun et al. taken in combination with Ito et al. does not make the present claimed invention unpatentable. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

Rejection of Claims 2 and 3 under 35 USC 103(a)

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. and Ito as applied to claims 1 and 10 above, and further in view of Eleftheriadis et al. (U.S. Patent No. 6,055,330).

Eleftheriadis et al. disclose an apparatus and method for identifying one or more separate object within depth information which corresponds to a field or a frame of video information. Similarly as discussed above regarding Sun et al. and Ito et al., Eleftheriadis et al. neither disclose nor suggest a process and device “for coding images according to a non-object based coding standard” i.e. the MPEG-2 standard as in the present claimed invention. Furthermore, Eleftheriadis et al. neither disclose nor suggest “multiplexing (4, 6, 7) the elementary streams relating to one or more objects and to the

CUSTOMER NO.: 24498
Serial No.: 09/808,463

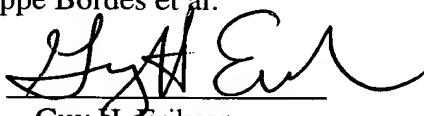
PATENT
PF000020

background image so as to provide a programme stream (PS) or transport stream (TS) according to the said standard" wherein said standard is "a non object-based coding standard" as in the present claimed invention.

In view of the above remarks, it is respectfully submitted that Eleftheriadis et al. when taken alone or in any combination with either Sun et al. or Ito et al. does not make the present invention as claimed in claim 1 unpatentable. As claims 2 and 3 are dependent on claim 1, it is respectfully submitted that claims 2 and 3 are patentable for the same reasons as discussed above with respect to claim 1. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

Having fully addressed the Examiner's rejections, it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicants' attorney at the phone number below, so that a mutually convenient date and time for a telephonic interview may be scheduled.

Please charge the \$110.00 fee for the one-month extension, and any other additional costs that may be associated with the filing of this response to Deposit Account 07-0832.

Respectfully submitted,
Philippe Bordes et al.
By: 
Guy H. Eriksen
Reg. No. 41,736
Tel. No. (609) 734-6807

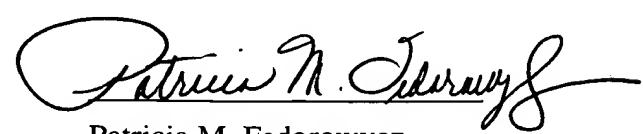
Thomson Licensing Inc.
Patent Operations
P.O. Box 5312
Princeton, NJ 08543-5312

July 20, 2004

CERTIFICATE OF MAILING under 37 C.F.R. §1.8

I hereby certify that this amendment is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

Date: July 20, 2004



Patricia M. Fedorowycz